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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/923,610	08/07/2001	Georg Rose	DE000116	1411

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EXAMINER

LERNER, MARTIN

ART UNIT PAPER NUMBER

2654

DATE MAILED: 09/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/923,610	ROSE, GEORG	
	Examiner	Art Unit	
	Martin Lerner	2654	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 August 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 to 7 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 to 7 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 August 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>13 August 2002</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

1. The drawings are objected to because they have reference numerals but do not have any descriptive labels. It is conventional for drawings to have both descriptive labels and reference numerals under patent practice in the United States.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office Action to avoid abandonment of the application. Any amended replacement-drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office Action. The objection to the drawings will not be held in abeyance.

Specification

2. The Abstract of the Disclosure is objected to because it is drafted as more than one paragraph. An Abstract of the Disclosure should be one paragraph only.

Correction is required. See MPEP § 608.01(b).

3. The disclosure is objected to because of the following informalities:

The Specification does not contain section headings as conventional under patent practice in the United States. The Specification should be amended to have section headings of "Background of the Invention", "Summary of the Invention", "Brief Description of the Drawings", and "Detailed Description of the Preferred Embodiments".

On Page 1, Lines 14 to 15, the sentence making reference to claim numbers should be deleted. The final numbering of the claims in an issued patent may not reflect the numbering of the originally filed claims, so the reference to specific claims may be inaccurate.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

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5. Claims 1 to 3, 5, and 7 are rejected under 35 U.S.C. 102(e) as being anticipated by *Sukkar*.

Regarding independent claims 1 and 7, *Sukkar* discloses a method and dialogue system for recognizing speech utterances, comprising:

“at least one word sequence hypothesis is generated by a speech recognizer from a speech utterance consisting of one or more words” – a recognition component 312 recognizes individual subwords in the input speech; the recognition component 312 emits the selected most-likely word, phrase, or sentence on path 324 as a word/phrase/sentence hypothesis (column 9, lines 59 to 60; column 10, lines 10 to 12: Figure 3);

“a comparison is made of the word sequence hypothesis with entries which represent company names and are stored in a database” – the recognition component 312 also has an associated word lexicon database 318 and a grammar database 320; the word lexicon database 318 represents a mapping between strings of subword sounds and vocabulary words, phrases, or sentences; the word lexicon database 318 contains a data structure describing the pronunciation, in terms of subword symbols, of each word in the system’s vocabulary; in conjunction with recognizing a string of subword sounds from sampled speech, the recognition component 312 consults the word lexicon database 318 to determine a word, phrase, or sentence in its vocabulary that most likely corresponds to the input speech (column 9, line 60 to column 10, line 9: Figure 3); the speech recognizer 100 was evaluated on a company name recognition task, the goal of which is to recognize the name of a company out of 6963 possible

names (column 13, lines 35 to 41); thus, word lexicon database 318 contains a list of company names for a company name recognition task;

“a company name is selected as a recognition result in dependence on the result of the comparison” – in conjunction with recognizing a string of subword sounds from sampled speech, the recognition component 312 consults the word lexicon database 318 to determine a word, phrase, or sentence in its vocabulary that most likely corresponds to the input speech (column 9, line 60 to column 10, line 9: Figure 3); the speech recognizer 100 was evaluated on a company name recognition task, the goal of which is to recognize the name of a company out of 6963 possible names (column 13, lines 35 to 41); thus, recognition component 312 selects a most-likely company name for a company name recognition task.

Regarding claim 2, *Sukkar* discloses subword-level verification subcomponent 410 receives the input speech on path 322 and generates for each subword a subword verification score representing a determination of whether the speech segment associated with the subword contains the subword hypothesis emitted by the recognition component 324; the subword verification scores 426a-426z are determined as a ratio of the likelihood that the speech segment contains the sound associated with the subword hypothesis; combiner subcomponent 414 combines the subword verification scores to produce a word/phrase/sentence verification score (“a probability value”) on path 428 for the speech unit (column 10, line 58 to column 11, line 12: Figure 4).

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Regarding claim 3, *Sukkar* discloses a discriminative training procedure for subword-based verification training of subword models based upon correct and incorrect recognitions (column 12, lines 6 to 65: Figures 6a and 6b); training subword models based upon correct and incorrect recognitions is equivalent to “an adaptation of a speech model”.

Regarding claim 5, *Sukkar* discloses a discriminative training procedure for subword-based verification training of subword models based upon correct and incorrect recognitions (“a speech model which was trained”) (column 12, lines 6 to 65: Figures 6a and 6b); training is “with the aid of the information stored in the database” because “the database” can be defined to collectively include recognition-specific subword acoustic Hidden Markov Models (HMMs) 316, word lexicon database 318, and grammar database 320, and training at least utilizes recognition-specific subword acoustic Hidden Markov Models (HMMs) 316 (Figures 3 and 4).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 4 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Sukkar* in view of *Chao Chang et al.*

Concerning claim 4, *Sukkar* discloses assigning a likelihood to each subword hypothesis and combining subword scores (column 10, line 58 to column 11, line 12), but omits not taking into account certain words defined a priori during comparison to entries in a database of company names. However, *Chao Chang et al.* teaches natural language speech recognition, where certain words are ascribed more importance for a weighting average so as to distinguish between smaller subsets of crucial words identified as necessary words and words that merely fill a slot. In the example of a company name "International Business Machines Incorporated" only the first three words are necessary words. (Column 6, Line 50 to Column 7, Line 14) Thus, "Incorporated" is not a necessary word for "International Business Machines Incorporated", so it is "a priori not taken into account during comparison." The objective is to process and interpret natural language in a manner that enhances operation through the use of semantic confidence values to enhance efficiency. (Column 1, Lines 20 to 27) It would have been obvious to one having ordinary skill in the art to not take into account certain words in a company name as taught by *Chao Chang et al.* in the speech recognition method and system of *Sukkar* for the purpose of enhancing operation through the use of semantic confidence values to enhance efficiency.

Concerning claim 6, *Sukkar* discloses the word lexicon database 318 may include plural pronunciations for some words (column 9, line 67 to column 10, line 1), where words in the word lexicon database 318 may represent company names in a company name recognition task (column 13, lines 36 to 57). Also, *Sukkar* discloses training of subword models (column 12, lines 6 to 65: Figures 6a and 6b). The only

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element omitted is training of subword models with variants of company names.

However, *Chao Chang et al.* teaches natural language speech recognition, where certain words are ascribed more importance for a weighting average so as to distinguish between smaller subsets of crucial words identified as necessary words and words that merely fill a slot. In the example of a company name "International Business Machines Incorporated" only the first three words are necessary words. (Column 6, Line 50 to Column 7, Line 14) Thus, variants of "International Business Machines Incorporated" are taken into account during recognition by not requiring all the words in a company name. The objective is to process and interpret natural language in a manner that enhances operation through the use of semantic confidence values to enhance efficiency. (Column 1, Lines 20 to 27) It would have been obvious to one having ordinary skill in the art to take into account variants of company names as taught by *Chao Chang et al.* during the training procedure in the speech recognition method and system of *Sukkar* for the purpose of enhancing operation through the use of semantic confidence values to enhance efficiency.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to Applicant's disclosure.

Mitchell et al., Kao, and Nagai et al. disclose related art.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Martin Lerner whose telephone number is (703) 308-

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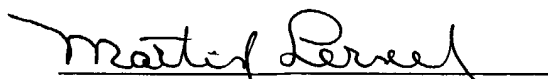
9064. The examiner can normally be reached on 8:30 AM to 6:00 PM Monday to Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richemond Dorvil can be reached on (703) 305-9645. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ML

9/21/04


Martin Lerner
Examiner
Group Art Unit 2654